CALIFORNIA ENERGY COMMISSION
1516 Ninth Street
Sacramento, California 95814

Main website: www.energy.ca.gov

In the matter of:	)	Docket No. 05-BSTD-1
	)	
California Code of Regulations (CCR), Title 24, Part 6, Section 118(i)3	)	NOTICE OF COMMITTEE HEARING
	)	
	)	RE: Cool Roof Coatings Performance Requirements

Notice of Energy Efficiency Committee Hearing
COOL ROOF COATINGS PERFORMANCE REQUIREMENTS

The California Energy Commission Energy Efficiency Committee will conduct a hearing to receive public input on draft revisions to the 45-day language (Express Terms) that had been previously proposed to revise the 2005 Building Energy Efficiency Standards (Standards) [Title 24, Part 6, Section 118(i)3, of the California Code of Regulations] with respect to the performance requirements of liquid-applied cool roof coatings that are installed in the field on low-sloped roofs. Vice Chair Jackalyne Pfannenstiel is the Presiding Member and Commissioner Arthur Rosenfeld is the Associate Member of the Energy Efficiency Committee. The hearing will take place at the following time and place:

MONDAY, APRIL 3, 2006
10 a.m.
CALIFORNIA ENERGY COMMISSION
1516 Ninth Street
First Floor, Hearing Room A
Sacramento, California
(Wheelchair Accessible)

Audio from this meeting will be broadcast over the Internet.
For details, please go to:
www.energy.ca.gov/webcast/

Purpose

The Efficiency Committee will receive public comment on draft revised language developed in response to comments on the previously proposed 45-day language (Express Terms) on performance requirements in the Standards regarding liquid-applied coatings installed in the field on low-sloped roofs. The 45-day language (Express Terms) had resulted from a petition for rulemaking submitted April 4, 2005, and accepted by the Energy Commission April 13, 2005.

The draft revisions to the previously proposed 45-day language (Express Terms) are attached to this notice. This notice and the draft revisions are posted on the Energy Commission's website at www.energy.ca.gov/title24/roofcoatings/documents/.

Background

The Standards allow builders to claim compliance credit for "cool roofs," that is, roofs that have specific solar reflectance and thermal emittance properties that reduce the need for air conditioning. To receive compliance credit under the Standards, liquid-applied roof coatings that are installed in the field on low-sloped roofs must meet physical performance requirements listed in Section 118(i)3. These include minimum elongation (stretching until breakage) requirements at 0°F, measured in conformance with American Society of Testing and Materials (ASTM) D2370-98 (2002), *Standard Test Method for Tensile Properties of Organic Coatings*. The proposed 45-day language would add an alternate test to allow minimum low-temperature flexibility instead of low-temperature elongation. The flexibility would be measured in conformance with ASTM D522-93a (2001), *Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings.*

On March 17, 2005, Energy Commission staff received a letter from the Roof Coating Manufacturers Association (RCMA) regarding the same section, Section 118(i)3, Table 118-C. RCMA suggested that the Energy Commission eliminate the physical performance requirements for liquid-applied cool roof coatings in Section 118(i)3. In addition, several stakeholders commented to staff that the minimum application thickness for liquid coatings specified in Section 118(i)3 was inappropriate for some products with chemistries that allowed durability at lesser thicknesses.

The Efficiency Committee held a public hearing on the 45-day language (Express Terms) on June 7, 2005. At the June 7 hearing, not all issues were resolved, and the Committee directed staff to work with the appropriate parties to do so. During this process the Energy Commission staff considered comments from the petitioners, RCMA, and other stakeholders concerning coating thickness requirements. As a result of extensive discussions, staff has developed draft revisions to the 45-day language that will be the subject of the April 3, 2006 hearing. At this hearing, the Committee will receive comment on these draft revisions. Following this hearing, the Committee will issue 15-day language for adoption at an upcoming Business Meeting.

Written Comments

Written comments related to this hearing must be submitted by 5:00 p.m. on April 3, 2006. Please include the docket number 05-BSTD-1 and indicate "Cool Roof Coatings Performance Requirements" in the subject line or first paragraph of your comments. Comments can be submitted via electronic mail to Elaine Hebert at ehebert@energy.state.ca.us or via postal mail or in person; if by mail or in person, hand deliver or mail an original plus 10 paper copies to the following address:

California Energy Commission
Dockets Office, MS-4
Re: Docket No. 05-BSTD-1
1516 Ninth Street
Sacramento, CA 95814-5512

The Energy Commission encourages comments by e-mail. Please include your name or organization's name in the title of the file. Those submitting comments by electronic mail should provide them on company letterhead in either Microsoft Word format or as a Portable Document (PDF).

Participants may also provide an original and 10 copies at the beginning of the hearing. All written materials relating to this hearing will be filed with the Dockets Unit and become part of the public record in this proceeding.

Public Participation

The Energy Commission's Public Adviser, Margret J. Kim, provides the public assistance in participating in Energy Commission activities. If you want information on how to participate in this forum, please contact the Public Adviser's Office at (916) 654-4489 or toll free at (800) 822-6228, by FAX at (916) 654-4493, or by e-mail at [pao@energy.state.ca.us]. If you have a disability and require assistance to participate, please contact Lou Quiroz at (916) 654-5146 at least five days in advance.

Please direct all news media inquiries to Claudia Chandler, Assistant Executive Director, at (916) 654-4989. If you have questions on the technical subject matter of this forum, please contact Elaine Hebert at ehebert@energy.state.ca.us or (916) 654-4800.

Jackalyne Pfannenstiel
Vice Chair and Presiding Member
Energy Efficiency Committee

Arthur H. Rosenfeld, Ph.D.
Commissioner and Associate Member
Energy Efficiency Committee

Mail Lists: 50, 52, 53 and 480

Note: California Energy Commission's formal name is State Energy Resources Conservation and Development Commission.

DRAFT REVISIONS TO 45-DAY LANGUAGE EXPRESS TERMS
FOR THE 2005 BUILDING ENERGY EFFICIENCY STANDARDS
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 6, SECTION 118 (i) 3
CALIFORNIA ENERGY COMMISSION

COOL ROOF COATINGS PERFORMANCE REQUIREMENTS

LEGEND FOR EXPRESS TERMS

1. Existing language - all such language appears in regular text.
2. New amendments or code language (45-day language) - all such language appears <u>underlined.</u>
3. Repealed text in 45-day language - all such language appears in ~~strikeout~~.
4. Draft Revisions to 45-day language – draft added language appears in <u>double underline</u>.
5. Draft Revisions to 45-day language – draft repealed language appears in ~~double strikeout~~.

EXPRESS TERMS

Section 101 (b) – Add the following definitions:

<u>**ASTM C836** is the American Society of Testing and Materials document entitled, "Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course," 2005 (ASTM C836-05).</u>

<u>**ASTM C1583** is the American Society of Testing and Materials document entitled, "Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension" (Pull-off Method)," 2004 (ASTM C1583-04).</u>

<u>**ASTM D522** is the American Society of Testing and Materials document entitled, "Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings," 2001 [ASTM D522-93a (2001)].</u>

<u>**ASTM D1653** is the American Society of Testing and Materials document entitled, "Standard Test Methods for Water Vapor Transmission of Organic Coating Films," 2003 (ASTM D1653-03).</u>

<u>**ASTM D2370** is the American Society of Testing and Materials document entitled, "Standard Test Method for Tensile Properties of Organic Coatings," 2002 [ASTM D2370-98 (2002)].</u>

<u>**ASTM D3468** is the American Society of Testing and Materials document entitled, "Standard Specification for Liquid-Applied Neoprene and Chlorosulfonated Polyethylene Used in Roofing and Waterproofing," 1999 (ASTM D3468-99).</u>

<u>**ASTM D5870** is the American Society of Testing and Materials document entitled, "Standard Practice for Calculating Property Retention Index of Plastics," 2003 [ASTM D5870-95 (2003)].</u>

ASTM D6083 is the American Society of Testing and Materials document entitled, "Standard Specification for Liquid Applied Acrylic Coating Used in Roofing," 2005 (ASTM D6083-05e1).

ASTM D6694 is the American Society of Testing and Materials document entitled, "Standard Specification for Liquid-Applied Silicone Coating Used in Spray Polyurethane Foam Roofing," 2001 (ASTM D6694-01).

Notation
Authority: Public Resources Code Sections 25213 and 25402 (a) and (b)
Reference(s): Public Resources Code Sections 25213 and 25402 (a) and (b)

Section 118 (i) 3 – Make the following changes:

3. Liquid-applied roof coatings applied to low-sloped roofs in the field as the top surface of a roof covering shall

   A. be applied across the entire roof surface to meet ~~at a~~ the ~~minimum~~ dry mil thickness ~~of 20 mils across the entire roof surface,~~or coverage recommended by the coating manufacturer, taking into consideration the substrate on which the coating is applied, and

   B. meet the minimum performance requirements listed in TABLE 118-C or the minimum performance requirements of ASTM C836, D3468, D6083, or D6694, whichever are appropriate to the coating material.

   EXCEPTION 1 to Section 118 (i) 3 B: Aluminum-pigmented asphalt roof coatings shall meet the requirements of ASTM D2824 or ASTM D6848 and be installed as specified by ASTM D3805.

   EXCEPTION 2 to Section 118 (i) 3 B: ~~Cement-based roof coatings shall be applied at a minimum dry mil thickness of 30 mils when installed over a capsheet surface, 40 mils when installed over a metal surface, and 200 mils when installed over a rock or gravel surface.~~ Cement-based roof coatings shall contain a minimum of 20% cement~~,~~ and shall meet the requirements of ASTM C1583, ASTM D822, and ASTM D5870.

TABLE 118-C MINIMUM PERFORMANCE REQUIREMENTS FOR LIQUID APPLIED ROOF COATINGS FOR LOW-SLOPED ROOFS

Physical Property	**ASTM Test Procedure**	**Requirement**
Initial percent elongation (break)	D2370	~~Minimum 60% 0 ºF (-18ºC)~~ Minimum 200% 73ºF (23ºC)
Initial percent elongation (break) OR Initial flexibility	D2370 D522, Test B	Minimum 60% 0ºF (-18ºC) Minimum pass 1" mandrel 0°F (-18°C)
Initial tensile strength (maximum stress)	D2370	Minimum 100 psi (1.38 Mpa) 73ºF (23ºC)

		~~Minimum 200 psi (2.76 Mpa) 0ºF (-18 ºC)~~
Initial tensile strength (maximum stress) OR Initial flexibility	D2370 D522, Test B	Minimum 200 psi (2.76 Mpa) 0ºF (-18ºC) Minimum pass 1" mandrel 0ºF (-18ºC)
Final percent elongation (break) after accelerated weathering 1000 h	D2370	~~Minimum 40% 0°F (-18°C)~~ Minimum 100% 73ºF (23ºC)
Final percent elongation (break) after accelerated weathering 1000 h OR Flexibility after accelerated weathering 1000 h	D2370 D522, Test B	Minimum 40% 0°F (-18°C) Minimum pass 1" mandrel 0°F (-18°C)
Permeance	D1653	Maximum 50 perms
Accelerated weathering 1000 h	D4798	No cracking or checking[1]
[1] Any cracking or checking visible to the eye fails the test procedure.		

Notation
Authority: Public Resources Code Sections 25213 and 25402 (a) and (b)
Reference(s): Public Resources Code Sections 25213 and 25402 (a) and (b)

Appendix 1-A – Add the following references under American Society for Testing and Materials:

ASTM C836-05	Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course (2005)
ASTM C1583-04	Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method) (2004)
ASTM D522-93a (2001)	Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings (2001)
ASTM D1653-03	Standard Test Methods for Water Vapor Transmission of Organic Coating Films (2003)
ASTM D2370-98 (2002)	Standard Test Method for Tensile Properties of Organic Coatings (2002)

ASTM D3468-99	Standard Specification for Liquid-Applied Neoprene and Chlorosulfonated Polyethylene Used in Roofing and Waterproofing (1999)
ASTM D5870-95 (2003)	Standard Practice for Calculating Property Retention Index of Plastics (2003)
ASTM D6083-05e1	Standard Specification for Liquid Applied Acrylic Coating Used in Roofing (2005)
ASTM D6694-01	Standard Specification for Liquid-Applied Silicone Coating Used in Spray Polyurethane Foam Roofing (2001)

Notation
Authority: Public Resources Code Sections 25213 and 25402 (a) and (b)
Reference(s): Public Resources Code Sections 25213 and 25402 (a) and (b)